

Notice of Allowability

Application No.

10/802,681

Examiner

DAVID P. RASHID

Applicant(s)

WATANABE, KAZUYO

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the interview summary conducted on 2/28/2008.
2. ☒ The allowed claim(s) is/are 2-11 and 13-19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20080228</u> . |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>2/11/2007</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT AND NOTICE OF ALLOWABILITY

1. The following examiner's amendment is in response to the telephone interviews on 2/28/2008.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee. Authorization for this examiner's amendment was given in a telephone interview with Louis Sickles (Reg. No. 45,803) on 2/28/2008.

The application has been amended as follows:

In the claims:

1. Canceled
2. (Currently amended) An image processing method of making luminance correction on the basis of a luminance histogram showing distribution of a luminance level of image data in which an image is expressed by a numerical value, comprising the steps of:
obtaining a luminance average value in said luminance histogram, a luminance standard deviation indicative of a degree of dispersion of luminance distribution from said luminance average value, and a peak distance value which indicates a longest distance between peaks is calculated in said luminance histogram in the case where plural peaks exist, so that plural distances between respective peaks exist;
comparing a distribution discrimination value which can discriminate whether a distribution deviation of the luminance level exists on a low luminance side or a high luminance side in said luminance histogram or not with the obtained peak distance value, and comparing a halftone presence/absence discrimination value which can discriminate whether the distribution deviation of the luminance levels does not exist in a halftone in said luminance histogram or not with the obtained standard deviation, thereby discriminating whether said image is a backlight image or not on the basis of results of said comparisons; and
comparing each of said luminance average value and said luminance

standard deviation by using an exposing state discrimination value which can discriminate the exposing state, thereby discriminating an exposing state of an image other than the backlight image, and

correcting the luminance of the image data based on the exposing state of said image.

3. (Original) The image processing method according to claim 2, wherein in said image process, luminance correction according to a backlight process to the backlight image, an under-exposure process to an under-exposure image, an over-exposure process to an over-exposure image, and a standard exposure process to a standard exposure image is made in accordance with the exposing state of said image.

4. (Original) The image processing method according to claim 2, wherein in said under-exposure process, in a histogram of said under-exposure image, said histogram is stretched in accordance with the histogram of said under-exposure image so as to shift the luminance average value existing on the low luminance side toward a predetermined value of said histogram.

5. (Original) The image processing method according to claim 3, wherein in said over-exposure process, in a histogram of said over-exposure image, said histogram is stretched in accordance with the histogram of said over-exposure image so as to shift the luminance average value existing on the high luminance side toward a predetermined value of said histogram.

6. (Original) The image processing method according to claim 3, wherein in said standard exposure process, in a histogram of said standard exposure image, the luminance average value is shifted toward a predetermined value in accordance with said histogram.

7. (Original) The image processing method according to claim 3, wherein in said backlight process, a histogram of said backlight image is divided into halves, the histogram on said low luminance side is stretched in accordance with the histogram of said backlight image

so as to shift the luminance average value existing on the low luminance side toward a predetermined value, and the histogram on said high luminance side is stretched in accordance with the histogram of said backlight image so as to shift the luminance average value existing on the high luminance side toward said predetermined value.

8. (Original) The image processing method according to claim 6, wherein in said backlight process, contacts where the histogram on said low luminance side and the histogram on said high luminance side have been respectively stretched are smoothly shown by using a three-dimensional function.

9. (Previously presented) The image processing method according to 4, wherein said predetermined value is an intermediate value in the histogram.

10. (Original) The image processing method according to claim 2, wherein prior to discriminating said exposing state, whether said image data is artificially formed image data or not is discriminated, and if it is determined that said image data is the artificially formed image data, the luminance correction is not made to said image data.

11. (Original) The image processing method according to claim 2, wherein if it is determined that said image data is a part of a series of image data constructed by a plurality of data, said image process is executed to the image data obtained by collecting a series of image data.

12. Canceled

13. (Previously presented) The image processing apparatus according to claim 19, further comprising an artificial image discriminating unit which discriminates whether said image data is artificially formed image data or not prior to the discrimination of said exposure discriminating unit,

and wherein when it is determined by said artificial image discriminating unit that said image data is the artificially formed image data, said correction processing unit does not

make the luminance correction to said image data.

14. (Previously presented) The image processing apparatus according to claim 19, further comprising a same image discriminating unit which discriminates whether said image data is a series of image data constructed by a plurality of data or not,
and wherein if said same image discriminating unit determines that said image data is same banded image data, said image process is executed to the image data obtained by collecting a series of image data.

15. (Previously presented) The image processing method according to claim 5, wherein said predetermined value is an intermediate value in the histogram.

16. (Previously presented) The image processing method according to claim 6, wherein said predetermined value is an intermediate value in the histogram.

17. (Previously presented) The image processing method according to claim 7, wherein said predetermined value is an intermediate value in the histogram.

18. (Currently amended) An image processing method for discriminating an exposure state of image data on the basis of a luminance histogram which indicates a distribution of luminance level of the image data and is generated from the image data, comprising the steps of:

calculating a luminance deviation value indicating a distribution state of luminance level from the luminance histogram;

detecting one or more peaks from the luminance histogram;

calculating a peak distance value which indicates the longest distance between peaks in the case that plural peaks exist so that plural distances between respective peaks exist;
and

discriminating that the image is a backlight image when the luminance deviation value is greater than or equal to a first predetermined value and the peak distance value is greater than or equal to a second predetermined value, and

correcting the luminance of the image data based on the discriminating of said image.

19. (Currently amended) An image processing apparatus for discriminating an exposure state of image data on the basis of a luminance histogram which indicates a distribution of luminance level of the image data and is generated from the image data, said apparatus comprising:

a luminance standard deviation unit which calculates a luminance deviation value indicating a distribution state of luminance level from the luminance histogram;

a peak distance obtaining unit which detects one or more peaks from the luminance histogram; and

an exposure discriminating unit which calculates a peak distance value which indicates the longest distance between peaks in the case that plural peaks exist so that plural distances between respective peaks exist; and discriminates that the image is a backlight image when the luminance deviation value is greater than or equal to a first predetermined value and the peak distance value is greater than or equal to a second predetermined value, wherein the luminance of the image data is corrected based on the discriminating of said image.

Allowable Subject Matter

3. Claims 2-11 and 13-19 allowed. These claims will be renumbered as 1-17.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 4929979 A; US 5123060 A; US 5668890 A; US 5748773 A; US 5748802 A; US 5874988 A; US 5995665 A; US 6040860 A; US 6351558 B1; US 20020071041 A1; US 20020136459 A1; US 20020183963 A1; US 20030038984 A1.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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